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## (54) Gaming and amusement machines

(57) In a gaming or amusement machine 1 of the kind known as a fruit machine, the 'payout factor' (i.e. the average payout within a period of time during which the machine is played continuously) is altered by a machine control unit 2, 5' in accordance with predetermined periods of the day or week. The payout factor may be altered in response to signals from a real-time clock 9' and in accordance with pre-programmed information stored in the control unit 2, 5'. During predetermined periods of the day or week when the machine is played less frequently the payout factor may be raised, e.g. by increasing the payout ratio, to make the machine more attractive to a player. Conversely, during busy periods the payout factor may be adjusted by decreasing the average duration of a game so that more players can play the machine in a certain time.

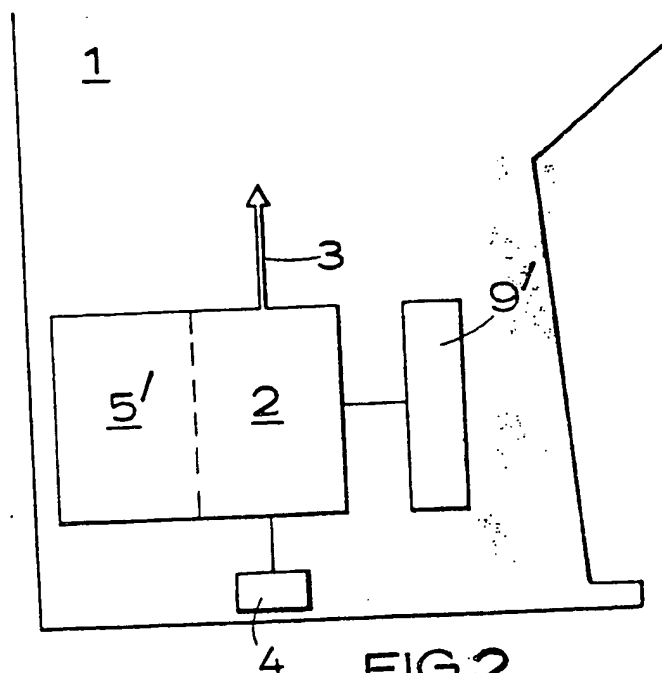


FIG. 2

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GAMING AND AMUSEMENT MACHINES

This invention relates to gaming machines and amusement machines of the kind which are operable, following the insertion of a coin or token or the deduction of a credit, to perform a number of operations in a game initiated by a player, the result of the game being either a non-winning game or a winning game after which either coins or tokens are paid out to the player or the player is given points or further credits. Such machines will hereinafter be referred to as of the kind described.

In a machine of the kind described, the amount of coins, tokens, points or credits given to the player after a winning game is known as the payout. A 'payout factor', herein defined as the average payout within a particular period of time during which the machine is played continuously, is dependent upon different variables such as the payout ratio (the ratio of the number of coins or tokens paid out to the number of coins or tokens put into the machine), and the number of games played in that particular period of time. If the machine is being played more or less continuously, the latter variable is approximately inversely proportional to the average duration of a game (the game cycle time), which can vary greatly because of different features being provided in some games but not others.

It is known to vary within certain limits the payout ratio of an individual machine to compensate for a preceding period of either higher or lower payout than normal. For instance, the payout ratio of a gaming or amusement-with-prizes machine of the kind known as a 'fruit machine' may be increased by a game

programme control device which increases the number of times a 'hold' or 'nudge' feature is available to increase the player's chance of winning in a period following a period of low payout.

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It has also been acknowledged previously that machines in locations such as bingo halls, amusement arcades and public houses, are played less frequently on certain specific days of the week and at particular times during the day, for instance during the afternoon between say 2 p.m and 4 p.m. and in the early evening before say 8 p.m.

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It is an aim of the present invention to encourage players to play the machines during those periods of the day or week when they are played less frequently. It is a further aim of the invention to enable more players to play an individual machine during those periods of the day when the machines are played more frequently.

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According to the present invention there is provided a gaming or amusement machine system comprising at least one gaming or amusement machine of the kind described and a machine control device which includes means for altering the payout factor, as herein defined, of the machine in accordance with predetermined periods of the day or week.

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Preferably, the control device is arranged to raise the payout factor of the machine during predetermined periods of the day or on days of the week when the machine is played less frequently. This makes the machine more attractive to a player. Likewise, the payout factor of the machine may be altered during predetermined periods of the day or on

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days of the week when the machine is played more frequently so that, during busy times when there is a greater number of players than the number of machines available to play, more players can play the machines within a certain time, thereby satisfying player demand.

The payout factor may be varied in different ways. The control device may alter the payout ratio, for instance by increasing or decreasing the availability of special features to increase or decrease the player's chance of winning. Alternatively or additionally, the control device may alter the average duration of a game, for instance by increasing or decreasing the average 'reel spin' time in a fruit machine, the time taken to play a feature, or the time taken for the machine to switch to an automatic mode when a player takes too long to make a decision or choice. Clearly, when the average game cycle time is decreased by such a method or methods, more games can be played on the machine in any given period enabling more players to play the machine within that period.

In a preferred gaming or machine system in accordance with the invention a plurality of gaming or amusement machines are controlled from a single central remote control device which is connected to an individual monitoring and adjustment unit associated with each machine. Each individual unit may collect data on, for instance, the play frequency and recent payout percentage of its associated machine and relay the data to the central control which may, in turn, send return signals to the units instructing them to adjust the payout factor as and when required. Thus the control device may itself determine the periods of the day or week during which the machines under its control

are played less frequently and adjust the payout factor of those machines accordingly.

It will, however, be appreciated that an individual control device for altering the payout factor may be associated with the or each individual machine and that the control device may be incorporated within or may be remote from the machine which it controls.

Two embodiments of the present invention will now be described, by way of example only, with reference to the accompanying schematic drawings in which:-

Figure 1 shows a fruit machine connected to an external data processing and remote control device; and

Figure 2 shows a fruit machine which incorporates an internal data processing and control device.

The fruit machine 1 illustrated in Figure 1 contains a machine control unit 2 in the form of a monitoring and adjustment unit which communicates with the standard functions of the machine, for instance reel mechanisms, game control buttons and special features, by means of internal wiring 3. The machine also includes a communications interface 4 which is able to exchange information with an external data processing and remote control device 5 via a communication channel 6, 7 and 8. Communication along the channel may take place along wires or by using signals superimposed on the mains power supply to the machine 1 and to the processing and control device 5. In the latter case 7 represents part of the site mains power wiring. Another possibility is for the

communication channel to use modulated infra-red radiation.

5 Signals from the machine control unit 2 relating to each game played on the machine are passed to the processing and remote control device 5 via the communications interface 4 and the communication channel 6, 7 and 8. The data processing and remote control device 5 can monitor the play density of the machine by counting the number of games played in a unit time interval determinable by a real-time clock 9 which is able to pass signals to the processing device 5. The processing and remote control device 5 is thus able to determine periods of the day (or week) when the machine is played more or less frequently and can make adjustments to the payout factor at these appropriate predetermined periods by sending payout factor adjustment signals to the machine control unit 2 via the communication channel 8,7,6 and the communications interface 4.

10 Additionally or alternatively the remote control device 5 could send predetermined payout factor adjustment signals to the machine control unit 2 at certain predetermined times of the day and/or on certain specific days of the week in accordance with pre-programmed information stored in the data processing device 5 and triggered in response to the input from the real-time clock 9.

25 30 A fruit machine system may be provided in which several communication channel elements 7 are provided by means of which the external data processing and control device 5 can communicate with a plurality of fruit machines 1. In such a system each machine could

have its play density monitored and its payout factor adjusted individually by the external device 5.

5 Alternatively, some or all of the fruit machines could have their payout factors adjusted at the same predetermined periods of the day or week in accordance with signals provided by the real-time clock 9.

10 The fruit machine 1 shown in Figure 2 includes, within its housing an internal data processing and control device 5' and a real-time clock 9' in addition to the usual machine control unit 2 and internal wiring 3. The device 5' and the real-time clock 9' function in the same manner as described with reference to 15 Figure 1 except that they are amalgamated with the machine control unit 2, and the communications interface 4 is not used for passing on play density information or pay out factor adjustment signals.

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CLAIMS

- 5 1. A gaming or amusement machine system comprising at  
least one gaming or amusement machine of the kind  
described and a machine control device which includes  
means for altering the payout factor, as herein  
defined, of the machine in accordance with  
10 predetermined periods of the day or week.
2. A system according to claim 1 in which the control  
device is arranged to raise the payout factor during  
predetermined periods of the day or week when the  
15 machine is played less frequently.
3. A system according to claim 1 or claim 2 in which  
the payout factor is varied by altering the payout  
ratio.  
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4. A system according to claim 1 or claim 2 in which  
the payout factor is varied by altering the average  
duration of a game.  
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- 25 5. A system according to claim 4 in which the control  
device is arranged to decrease the average duration of  
a game during predetermined periods of the day or week  
when the machine is played more frequently.
- 30 6. A system according to any one of the preceding  
claims in which the machine control device comprises a  
monitoring and adjustment unit in conjunction with a  
data processing and control device enabling the play  
density of the machine to be monitored so as to  
35 determine periods of the day or week when the machine  
is played more or less frequently, whereby the payout



factor can be adjusted during these predetermined periods.

5 7. A system according to any one of the preceding claims in which the payout factor is adjusted at predetermined times of the day and/or on certain days of the week in accordance with pre-programmed information stored in the machine control device and under the control of a real-time clock.

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8. A system according to any one of the preceding claims in which the machine control device is contained within the housing of the gaming or amusement machine.

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9. A system according to claim 6 in which the monitoring and adjustment unit is contained within the housing of the machine and the data processing and control device comprises an external unit remote from the machine.

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10. A gaming or amusement machine system comprising a plurality of gaming or amusement machines of the kind described, a remote control device, and adjustment means associated with each machine for altering the payout factor, each adjustment means being arranged to adjust the payout factor of its associated machine in accordance with periods of the day or week predetermined by the remote control device.

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11. A system according to claim 10 in which the play density of each individual machines is monitored by the remote control device to determine the periods of the day or week when the payout factor is to be adjusted.

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12. A system according to claim 11 in which the payout factor of each machine is adjusted in response to

signals from a real-time clock in accordance with pre-programmed information stored in the remote control device.

5 13. A gaming or amusement machine system substantially as described herein with reference to Figure 1 of the accompanying drawings.

( ) 10 14. A gaming or amusement machine substantially as described herein with reference to Figure 2 of the accompanying drawings.

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